

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~striketrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (ORIGINAL) A method of transmitting serial data/addresses for a printer head, comprising:

generating and supplying data for determining simultaneous firing nozzles and a nozzle group firing direction through a fire/group direction data line;

selecting simultaneous firing nozzles based on the data provided through the fire/group direction data line;

generating nozzle group selection signals from a bi-directional shift register to select nozzle groups;

generating and providing a fire pulse to fire the selected nozzles;

selecting specific firing nozzles based on the fire pulse; and

applying the specific firing nozzles to the selected nozzle groups to fire the selected nozzles.

2. (ORIGINAL) The method as claimed in claim 1, wherein the selecting of the simultaneous firing nozzles comprises:

storing in first memories the firing group data and direction data in synchronization with a shift clock;

storing outputs of the first memories in respective second memories in synchronization with a latch clock; and

ANDing respective outputs of the second memories and the fire pulse signal to generate nozzle firing signals.

3. (ORIGINAL) The method as claimed in claim 2, wherein the selecting of the specific firing nozzles comprises:

ANDing the nozzle firing signals and the outputs of the nozzle group selection signals of the bi-directional shift register.

4. (ORIGINAL) A device for transmitting serial data/addresses for a printer head in an interface unit transmitting firing information to the printer head with plural firing nozzles, comprising:

- a data processing unit which provides:
 - input data comprising simultaneous firing nozzle data and data for determining a nozzle group firing direction, and
 - a fire pulse;
- a firing group direction data line which provides the input data to the printer head;
- a fire pulse line which provides the fire pulse to the printer head;
- a selection unit which selects simultaneous firing nozzles based on the simultaneous firing nozzle data and the fire pulse;
- a bi-directional shift register which generates firing nozzle group selection signals; and
- a unit which fires the selected nozzles based on the firing nozzle group selection signals.

5. (ORIGINAL) The device as claimed in claim 4, wherein the selection unit further comprises:

- first memories which store the simultaneous firing nozzle data and the nozzle group firing direction data, the first memories having one more in number than a number of the simultaneous firing nozzles.

6. (ORIGINAL) The device as claimed in claim 4, wherein the selection unit further comprises:

- second memories which store the simultaneous firing nozzle data, the second memories having a same number as a number of the simultaneous firing nozzles.

7. (ORIGINAL) The device as claimed in claim 6, wherein the selection unit further comprises:

- a first plurality of logic AND gates, each of which logic-ANDs a portion of the simultaneous firing nozzle data and the fire pulse signal, a number of the logic and gates being the same as a number of the simultaneous firing nozzles.

8. (ORIGINAL) The device as claimed in claim 7, wherein the selection unit further comprises:

a second plurality of logic AND gates, each of which logic ANDs an output of one of the plurality of first logic AND gates and one of the nozzle group selection signals of the bi-directional shift register, a number of the second plurality of logic AND gates being the same as a number of the nozzles of the printer head.

9. (ORIGINAL) A device for generating signals for simultaneously firing nozzles of a printer head, the printer head comprising X groups of nozzles with Y nozzles in a group, where X and Y are integers, the device comprising:

a data processing unit which provides:

serial input data comprising Y bits which define specific nozzles of a group to be fired simultaneously and an additional bit,

a shift clock,

a latch clock, and

a fire pulse;

a converter which outputs the Y bits and the additional bit as parallel data in response to the shift clock;

a Y bit latch which latches the parallel Y bits in response to the latch clock;

a first logic AND unit which logic ANDs each of the parallel Y bits and the fire pulse, to output Y nozzle selection signals;

a bi-directional shift register having a shift direction input, X+2 parallel outputs comprising an MSB, an LSB and X outputs between the MSB and the LSB, wherein values of the X parallel outputs are shifted in response to the latch clock and the additional bit;

a second logic AND unit which logic ANDs each of the X outputs with each of the Y nozzle selection signals to output the simultaneous firing nozzle signals.

10. (ORIGINAL) The device of claim 9, wherein:
the MSB and the LSB of the bi-directional shift are each initially preloaded with data of "1" prior to the values of the X parallel outputs being shifted.

11. (ORIGINAL) The device of claim 9, wherein values of the X parallel outputs are shifted in a first direction where the additional bit has a value of 1 and are shifted in a second direction where the additional bit has a value of 0.

12. (ORIGINAL) The device of claim 9, wherein the first logic AND unit comprises Y

AND gates.

13. (ORIGINAL) The device of claim 9, wherein the second logic unit comprises $X \cdot Y$ AND gates.

14. (ORIGINAL) A method of generating simultaneous firing nozzle signals for a printer head, the printer head comprising X groups of nozzles with Y nozzles in a group, where X and Y are integers, the method comprising:

providing serial input data to the printer head, the serial input data comprising Y bits which define specific nozzles of a group to be fired simultaneously and an additional bit,

converting the Y bits and the additional bit to parallel data in response to a shift clock;

latching the parallel Y bits in response to a latch clock;

loading a predetermined value into a bi-directional shift register and outputting X bits in parallel;

shifting the value of the parallel outputs of the bi-directional shift register in response to the latch clock and the additional bit, a direction of the shift being controlled by the additional bit;

logically ANDing each of the Y bits with a fire pulse and with each of the X bits to output the simultaneous firing nozzle signals.

15. (ORIGINAL) The method of claim 14, further comprising:

outputting the X bits and an MSB and an LSB from the bi-directional shift register, and

loading a 1 into each of the MSB and the LSB and loading a 0 into each of the X bits as the predetermined value.